REMARKS

Claims 1-19 are pending in the present Application. With this Response, Applicant amended the Abstract and Claim 1. Applicant also added claims 15-19. The amendments add no new matter and are fully supported by the specification.

Specification

The Office Action stated:

> "1. Applicant(s) is(are) reminded of the proper content of an abstract of the disclosure.
>
> The abstract should not refer to purported merits ("can be operated efficiently", "has a simpler transformer structure") or speculative applications ("makes it possible to use low voltage integrated circuits in high voltage applications") of the invention and should not compare the invention with the prior art. Correction is required.
>
> 2. The language should be clear.... It should avoid phrases which can be implied, such as, 'A converter-controller is presented for controlling a converter'..."

In response, Applicant amended the Abstract accordingly. Applicant also notes that the term: "makes it possible to use low voltage integrated circuits in high voltage applications" is not a speculative application, but is an aspect of embodiments of the invention.

Claim Rejections – 35 USC § 102

The Office Action rejected claims 1, 6-7, 9-11, 13-14 under 35 U.S.C. §102(b) as being fully anticipated by Shimizu (U.S. Patent 4,992,702).

Currently amended claim 1 recites:

> "1. A converter-controller, operable to control a converter having a transformer, the transformer having a primary and a secondary coil, the converter-controller comprising:
>
> a power device, coupled to the primary coil of the transformer;

a resonant circuit, coupled to the primary coil and the power device;
a voltage regulator, coupled to the resonant circuit; and
a control logic, coupled to the voltage regulator, wherein the control logic is configured to operate the power device at an essentially constant frequency by varying the length of switch-ON and switch-OFF intervals of the power device."

The Office Action stated:

"Shimizu et al. shows, (in, e.g. the(ir) figures and corresponding disclosure).

As to claim 1;

A converter-controller, operable to control to control a converter having a transformer (202), the transformer having a primary (202_1) and the secondary coil (202_2), the converter-controller comprising: a power device (302), coupled to the primary coil of the transformer; a resonant circuit (402/204/404), coupled to the primary coil and the power device; a voltage regulator (50_1), coupled to the resonant circuit; and a control logic (see, e.g., figure 2 and column 3 lines 18-26), coupled to the voltage regulator."

In response, Applicant respectfully traverses the rejection and points out that Shimizu does not describe at least: "a control logic, coupled to the voltage regulator, wherein the control logic is configured to operate the power device at an essentially constant frequency by varying the length of switch-ON and switch-OFF intervals of the power device."

Indeed, Shimizu describes an "inverter, capable of controlling operating frequency," as described at many places including the title. Shimizu achieves this goal by utilizing a Voltage Controlled Oscillator 506, controlling the operating frequency of (power) transistor 302. Shimizu does not describe modifying the switch-ON and switch-OFF intervals of the power device.

In contrast, in embodiments of the present invention the power device is operated at an essentially constant frequency by varying the length of switch-ON and switch-OFF intervals of the power device.

In sum, claim 1 is patentable at least for the above described reasons.

The Office Action rejected claims 6, 7 and 9-11. These claims depend from allowable claim 1 and therefore are allowable themselves.

The Office Action rejected claim 13. Claim 13 recites:

> "13. The method of operating a converter-controller, comprising a power device, coupled to a primary coil of a transformer of a converter, a resonant circuit, a voltage regulator, and a control logic, the method comprising:
>
> powering the control logic by the power device, the resonant circuit and the voltage regulator; and
>
> controlling, by the control logic, the length of switch-ON and switch-OFF intervals of the power device, thereby controlling an output voltage of the converter."

The Office Action stated:

> "As to claim 13, for method claims, not that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated."

In response, Applicant respectfully traverses the rejection and notes that Shimizu does not describe "controlling, by the control logic, the length of switch-ON and switch-OFF intervals of the power device." As pointed out above, Shimizu does not vary the length of the switch-ON and switch-OFF intervals. Instead, Shimizu varies the operating frequency, as described e.g. in the title.

In contrast, in embodiments of the present invention the power device is controlled by varying the length of the switch-ON and switch-OFF intervals, as recited.

In sum, claim 13 is patentable at least for the reasons stated above.

Claim 14 depends from claim 13 and is therefore patentable itself.

Claim Rejections – 35 USC § 103

The Office Action rejected claim 12 under 35 U.S.C. § 103 as being unpatentable over Shimizu et al. (U.S. Patent 4,992,702) in view of an official notice.

In response, Applicant respectfully traverses the rejection and notes that claim 12 depends from allowable claim 1 and is therefore itself allowable.

New Claims 16-19

Applicant added new claims 16-19. The new claims are fully supported by the specification and figures and do not add new matter. In relation to Shimizu, Applicant notes that Shimizu does not describe a:

> "a series resonant circuit, coupled to the primary coil and the power device;
> a voltage regulator, coupled to the resonant circuit; and
> a control logic, coupled to the voltage regulator, wherein an operating voltage of the control logic is clamped."

Indeed, Shimizu's resonant circuit contains capacitor 204 and inductor 206_1 in parallel. In contrast, Applicant's resonant circuit contains inductor L1 and capacitor C1 in series.

Furthermore, it is well known that series resonant circuits have considerably lower voltages at or near resonance conditions than parallel resonant circuits. As described e.g. in relation to FIG. 4 and elsewhere, using this low voltage, embodiments provide a low (or clamped) operating voltage for control logic U1.

Allowable Subject Matter

Claims 2-5 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In response, Applicant gratefully thanks the Examiner for recognizing claims 2-5 and 8 as patentable, if rewritten in independent form. Since currently amended claim 1 has been

shown to be patentable, Applicant respectfully traverses the objection and notes that since these claims depend from patentable claim 1, they themselves are patentable.

CONCLUSION

Applicant respectfully requests that the pending claims be allowed and the case passed to issue. Should the Examiner wish to discuss the Application, it is requested that the Examiner contact the undersigned at (415) 772-7434.

Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

8-11-05 Richard A. Pasic

Date Signature

Respectfully submitted,

By: Gergely T. Zimányi
Agent of Record
Reg. No.: 45,754
GTZ/rp

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SIDLEY AUSTIN BROWN & WOOD LLP
555 California Street, Suite 2000
San Francisco, CA 94104-1715